IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application for Reissue of Raymond G. Gallagher	:
U.S. Patent No. 5,813,191	:
SPACER FRAME FOR AN INSULATING UNIT HAVING STRENGTHENED SIDEWALLS TO RESIST TORSIONAL TWIST	:

FOURTH SUPPLEMENTAL REISSUE DECLARATION UNDER 36 CFR 1.175

I, Raymond G. Gallagher, applicant of the above-identified application, request that I may be allowed to surrender the United States Letters Patent No. 5,813,191 for **SPACER FRAME FOR AN INSULATING UNIT HAVING STRENGTHENED SIDEWALLS TO RESIST TORSIONAL TWIST**, granted September 29, 1998, and that a reissue patent be issued to the assignee of the original patent, PPG Industries Ohio, Inc., Cleveland, Ohio, a corporation of the State of Delaware, of the same invention upon the accompanying specification and claims, whereby I declare:

That I am a citizen of the United States of America residing in respectively, Pittsburgh, Allegheny County, Pennsylvania;

That I believe myself to be the original, sole and first inventor of the invention described and claimed in Letters Patent No. 5,813,191 and the foregoing specification and for which invention I solicit a reissue patent;

That I have reviewed and understand the contents of the specification and claims of U.S. Patent No. 5,813,191 including the claims being added by this reissue and the claims attached hereto to be filed in response to the Final Office Action mailed March 2, 2010;

That I do not know and do not believe that said invention was ever known or used in the United States of America before my invention thereof;

That I acknowledge a duty to disclose information of which I am aware which is material to the examination of the application;

That I appoint the following as attorneys, will full power of substitution, to prosecute this application, to make alterations or amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith:

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That I believe that U.S. Patent No. 5,813,191 is partially inoperative by reason of patentee claiming less than I had a right to claim in the patent;

That the error being relied upon as the basis for reissue is that the embodiment of the invention, wherein portions of the bead on the inner surface of the frame are positioned between the inner surface of the base and the end portions of the members as recited in column 8, lines 1-18 of U.S. Patent No. 5,813,191 was not claimed;

That all errors being corrected in the reissue application arose without any deceptive intention on the part of the applicant; and

That these errors are specifically corrected by the addition of claims 35-55 presently on file in the reissue.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application of any patent issuing thereon.

Full name of sole inventor: Raymond G. Gallagher

Inventor's Signature Raymond G. Gallagher 4/15/10
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AMENDMENTS TO THE CLAIMS

Claims 3, 7, 47 and 54 were previously cancelled. This amendment cancels claims 1, 2, 4, 5, 8, 21-25 and 28-32 without prejudice, and amends claims 6, 9, 12, 13, 16-20, 26 and 33. Upon entering this amendment, the following listing of claims will replace all prior versions, and listings, of claims in this application:

Listing of Claims

Cancel Claims 1-5

Claim 6 (Amended). An elongated [The] spacer stock [of claim 4] used in the manufacture of a spacer frame to separate sheets of an insulating unit, the spacer stock comprising:

an elongated base;

a first elongated leg having a first member and a second member joined together to have a generally U-shaped cross section;

a second elongated leg having a first member and a second member joined together to have a generally U-shaped cross section;

wherein the first members of the first and second legs are joined to the base to provide the spacer stock with a generally U-shaped cross section, wherein an open end of the U formed by the first and second legs and the base is open in a first direction, the U-shaped cross section of the first leg open in a second direction, and the U-shaped cross section of the second leg open in the second direction with the first and second directions opposite to one another, and

wherein the first and second members of the first leg are spaced from and out of contact with one another; the first and second members of the second leg are spaced from and out of contact with one another; the second member of the first and the second legs are spaced from one another, and the first and second legs are connected to one another only by the base to provide only one thermal conducting path from the first leg to the second leg, and

wherein the end of the second member of the first and second legs is radiused, and the radiused end of the second members [member] of the first

and second legs [member] are spaced from the inner surface of the elongated base [between the second members of the first and second legs].

Cancel Claims 7 and 8.

Claim 9 (Amended). An elongated [The] spacer stock [of claim 1] used in the manufacture of a spacer frame to separate sheets of an insulating unit, wherein the spacer stock [has] comprises:

a continuous elongated base;

a first elongated leg having a first member and a second member joined together to have a generally U-shaped cross section;

a second elongated leg having a first member and a second member joined together to have a generally U-shaped cross section;

wherein the first members of the first and second legs are joined to the base to provide the spacer stock with a generally U-shaped cross section with an open end of the U formed by the first and second legs and the base open in a first direction, the U-shaped cross section of the first leg open in a second direction, and the U-shaped cross section of the second leg open in the second direction with the first and second directions opposite to one another, and

wherein the first and second members of the first leg are spaced from and out of contact with one another; the first and second members of the second leg are spaced from and out of contact with one another; the second member of the first and the second legs are spaced from one another; the first and second legs are connected to one another only by the base to provide only one thermal conducting path from the first leg to the second leg, and portions of the second member of the first and second legs are removed at positions along the spacer stock that form corners when the spacer stock is bent into the [a] spacer frame.

Claim 10 (Amended). The spacer stock of claim 9 wherein the first member of the first and second legs at corners have crease [has weaking] lines arranged to have a generally "V" shape.

Claim 11 (Amended). The spacer stock of claim 9 wherein the first member of

the first and the second legs has a cut out portion at the positions along the spacer stock that form corners when the spacer stock is bent into the [a] spacer frame.

Claim 12 (Amended). An elongated [The] spacer stock [of claim 1] used in the manufacture of a spacer frame to separate sheets of an insulating unit, the spacer stock comprising:

an elongated base, wherein the base has a "T" shaped cross section;

a first elongated leg having a first member and a second member joined together to have a generally U-shaped cross section;

a second elongated leg having a first member and a second member joined together to have a generally U-shaped cross section;

wherein the first members of the first and second legs are joined to the base to provide the spacer stock with a generally U-shaped cross section with an open end of the U formed by the first and second legs and the base open in a first direction, the U-shaped cross section of the first leg open in a second direction, and the U-shaped cross section of the second leg open in the second direction with the first and second directions opposite to one another;

wherein the first and second members of the first leg are spaced from and out of contact with one another; the first and second members of the second leg are spaced from and out of contact with one another; the second member of the first and the second legs are spaced from one another, and the first and second legs are connected to one another only by the base to provide only one thermal conducting path from the first leg to the second leg, and

wherein the "T" shaped cross section of the base extends [extending] upwardly between the first and second legs, and is spaced from and out of contact with the first and second legs.

Claim 13 (Amended). A closed spacer frame for separating sheets of an insulating unit, the closed spacer frame comprising:

a base defining perimeter of the closed spacer frame;

a first leg connected to the base, the first leg defining a side of the spacer frame and having a first member and a second member joined together to have a generally U-shaped cross section wherein the first member and the

second member of the first leg are spaced from one another;

a second leg connected to the base, the second leg defining an opposite side of the spacer frame and having a first member and a second member joined together to have a generally U-shaped cross section wherein the first member and the second member of the second leg are spaced from one another; wherein

the first and second legs are spaced from and out of contact with one another and connected to the base to provide the spacer frame with a generally U-shaped cross section with an open end of the U-shaped cross section of the spacer frame facing in a first direction and opening of the U-shaped cross section [U] of the first and second legs facing in a second direction opposite to the first direction to reduce torsional twist, and the first and second legs are connected to one another only by the base to provide only one thermal conducting path from the first leg to the second leg.

Claim 14 (Amended). The closed spacer frame [stock] of claim 13 wherein the first member of the first and second legs is joined to the second member of the first and second legs by a radiused portion.

Claim 15 (Amended). The closed spacer frame [stock] of claim 14 wherein the first and second legs each include:

the [a] first member of the first and the second legs joined to the [a] second member of the first and the second legs, respectively to have a generally hairpin configuration with the first member of the first and the second legs joined to the base.

Claim 16 (Amended). The closed spacer frame [stock] of claim 15 wherein:

the end of the second member of the first and second legs is radiused, and

the radiused end of the second member of the first and second legs is out of contact with the base.

Claim 17 (Amended). The closed spacer frame of claim 13 wherein the spacer frame has corners and the base is continuous around the corners of the spacer

frame.

Claim 18 (Amended). The closed spacer frame of claim 17 wherein [the] portions of the first and second [outer] legs are bent toward one another over the base.

Claim 19 (Amended). The closed spacer frame of claim 18 wherein portions of the second member of the first and second legs are removed at the corners and the portions of the first and second legs bent toward one another over the base are portions of the first member of the first and second legs [are bent over the base].

Claim 20 (Amended). The closed spacer frame of claim 16 wherein a bead of moisture pervious material having a desiccant is deposited on the surface of the base between the first and second legs defined as inner surface of the base, and the bead having portions between the radiused end of the second member of the first and second legs and the inner surface of the base.

Cancel Claims 21-25

Claim 26 (Amended). An [The] insulating unit [of claim 25] comprising:

a pair of sheets;

a spacer frame between the pair of sheets, the spacer frame comprising:

a base;

a first leg

a second leg;

wherein the first and second legs are spaced from and out of contact with one another and joined to the base to provide the spacer frame in cross section with a generally U-shaped cross section with an open end of the U-shaped cross section facing a first direction and the first and second legs each including a first member having two ends, one end attached to the base and the remaining end joined by a radiused portion to a second member such that the second member has an end positioned relative to the base and the first and the second

members form a generally U-shaped cross-sectional configuration with an opening of the U-shaped cross-sectional configuration facing a second direction opposite to the first direction to reduce torsional twist, and the first and second legs are connected to one another only by the base to provide only one thermal conducting path from the first leg to the second leg, and

wherein[:] the first and second members are spaced from one another to provide the first and second legs with a hairpin cross sectional configuration; the end of the second member is radiused, and the radiused end is spaced from and out of contact with the base, and

means for securing the sheets to the spacer frame.

Claim 27. The insulating unit of claim 26 wherein the spacer frame has corners and the base is continuous around the corners.

Cancel Claims 28-32.

Claim 33 (Amended). A [The] method [set forth in claim 32 further including] of making and using a spacer stock comprising the steps of:

providing a strip of bendable material;

shaping the strip to provide an elongated piece of spacer stock having a base, a first leg and a second leg, the base and legs joined to provide the spacer stock with a generally U-shaped cross section with the U-shaped cross section open in a first direction and the first and second legs spaced from one another and out of contact with one another, and the legs each having a first member joined to and spaced from a second member to have a U-shaped cross section with an opening of the U-shaped cross section of the first and second legs open in a second direction opposite to the first direction to reduce torsional twist of the spacer stock and the first and second legs connected to one another only by the base to provide only one thermal conducting path from the first leg to the second leg;

identifying corner positions on the elongated piece of spacer stock;

removing portions of the second member of the first and second legs at the corner positions, and

bending the spacer stock at the corner positions to provide a spacer frame.

Claim 34. The method as set forth in claim 33 further including the step of:

securing a sheet to outer surface of each of the legs to provide an insulating unit.

Claim 35 (Twice Amended). An elongated spacer stock used in the manufacture of a spacer frame to space sheets of an insulating unit, the spacer stock comprising:

an elongated base having a supporting surface;

an elongated first leg having a first elongated member joined to the elongated base and a second elongated member joined to and spaced from the first elongated member of the first leg and the second elongated member of the first leg having an end portion positioned over and spaced from the supporting surface of the base;

an elongated second leg having a first elongated member joined to the elongated base and a second elongated member joined to and spaced from the first elongated member of the second leg and the second elongated member of the second leg having an end portion positioned over and spaced from the supporting surface of the base, the first elongated member and the second elongated member of the first leg joined together to provide the first leg with a U-shaped cross section and the first elongated member and the second elongated member of the second leg joined together to provide the second leg with a U-shaped cross section, and the first and the second legs and the base joined together to provide the elongated spacer stock with a U-shaped cross section, wherein the open end of the U-shaped cross section of the first and the second legs each open in a first direction and the open end of the U-shaped cross section of the spacer stock opens in a second direction opposite to the first

direction and the supporting surface of the base is between the first elongated member of the first and the second legs; and

a bead on the supporting surface of the base with portions of the bead between the supporting surface of the base and the end portion of the second elongated members of the first and second legs.

Claim 36 (Amended). The spacer stock of claim 35 wherein the end portion of at least one of the second members of the first and second legs limits movement of the bead away from the supporting surface of the base.

Claim 37. The spacer stock of claim 36 wherein the bead is made of a moisture pervious material.

Claim 38. The spacer stock of claim 37 wherein the bead has desiccant therein.

Claim 39. The spacer stock of claim 37 wherein the moisture pervious material is a moisture pervious adhesive.

Claim 40. The spacer stock of claim 35 wherein the spacer stock has a length sufficient to provide a closed spacer frame for the insulating unit.

Claim 41. The spacer stock of claim 40 wherein the spacer stock has a first end and an opposite end defined as a second end and the first and second ends are to be joined to provide the closed spacer frame wherein the base is continuous from the first end to the opposite end.

Claim 42 (Three Times Amended). A closed spacer frame to space sheets of an insulating unit, the closed spacer frame comprising:

an elongated base having a supporting surface;

an elongated first leg having a first elongated member joined to the elongated base and a second elongated member joined to and spaced from the first elongated member of the first

leg and the second elongated member of the first leg having an end portion positioned over and spaced from the supporting surface of the base;

an elongated second leg having a first elongated member joined to the elongated base and a second elongated member joined to and spaced from the first elongated member of the second leg and the second elongated member of the second leg having an end portion positioned over and spaced from the supporting surface of the base, the first elongated member and the second elongated member of the first leg joined together to provide the first leg with a U-shaped cross section and the first elongated member and the second elongated member of the second leg joined together to provide the second leg with a U-shaped cross section , and the first and the second legs and the base joined together to provide the spacer frame with a U-shaped cross section, wherein the open end of the U-shaped cross section of the first and the second legs each open in a first direction and the open end of the U-shaped cross section of the spacer frame opens in a second direction opposite to the first direction and the supporting surface of the base is between the first elongated member of the first and the second legs; and

a bead on the supporting surface of the base with portions of the bead between the supporting surface of the base and the end portion of the second elongated members of the first and second legs.

Claim 43 (Amended). The spacer frame of claim 42 wherein the end portion of at least one of the second members of the first and second legs limits movement of the bead away from the supporting surface of the base.

Claim 44 (Amended). The spacer frame of claim 43 wherein the bead is made of a moisture pervious material.

Claim 45 (Amended). The spacer frame of claim 44 wherein the bead has desiccant therein.

Claim 46 (Amended). The spacer frame of claim 44 wherein the moisture pervious material is a moisture pervious adhesive.

Cancel Claim 47.

Claim 48 (Amended). The spacer frame of claim 42 wherein the spacer frame has four corners and the base is continuous around at least three of the four corners.

Claim 49 (Twice Amended). An insulating unit comprising:

a pair of sheets;

a spacer frame between and adhered to the pair of sheets by an adhesive, the spacer frame comprising:

an elongated base having a supporting surface;

an elongated first leg having a first elongated member joined to the elongated base and a second elongated member joined to and spaced from the first elongated member of the first leg and the second elongated member of the first leg having an end portion positioned over and spaced from the supporting surface of the base;

an elongated second leg having a first elongated member joined to the elongated base and a second elongated member joined to and spaced from the first elongated member of the second leg and the second elongated member of the second leg having an end portion positioned over and spaced from the supporting surface of the base, the first elongated member and the second elongated member of the first leg joined together to provide the first leg with a U-shaped cross section and the first elongated member and the second elongated member of the second leg joined together to provide the second leg with a U-shaped cross section, and the first and the second legs and the

base joined together to provide the spacer frame with a U-shaped cross section, wherein the open end of the U-shaped cross section of the first and the second legs each open in a first direction and the open end of the U-shaped cross section of the spacer frame opens in a second direction opposite to the first direction and the supporting surface of the base is between the first elongated member of the first and the second legs; and

a bead on the supporting surface of the base with portions of the bead between the supporting surface of the base and the end portion of the second elongated members of the first and second legs.

Claim 50 (Amended). The insulating unit of claim 49 wherein the end portion of at least one of the second members of the first and second legs limits movement of the bead away from the supporting surface of the base.

Claim 51 (Amended). The insulating unit of claim 50 wherein the bead is made of a moisture pervious material.

Claim 52 (Amended). The insulating unit of claim 51 wherein the bead has desiccant therein.

Claim 53 (Amended). The insulating unit of claim 51 wherein the moisture pervious material is a moisture pervious adhesive.

Cancel claim 54.

Claim 55 (Amended). The insulating unit of claim 49 wherein the spacer frame has three corners and the base is continuous around at least three of the four corners.